

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of the Claims:

1 Claim 1 (currently amended): A method of joining ~~plastics~~  
2 workpieces comprising:

3 a) creating a first surface diffusion zone containing  
4 therein a first polymerizable material, wherein said first  
5 surface diffusion zone is adjacent to a first surface of a  
6 first workpiece within said first workpiece; and,

7 if present, removing excess of said first polymerizable  
8 material from said first surface; and,

9 b) creating a second surface diffusion zone containing  
10 therein a second polymerizable material, wherein said second  
11 surface diffusion zone is adjacent to a second surface of a  
12 second workpiece within said second workpiece; and,

13 if present, removing excess of said second  
14 polymerizable material from said second surface, and wherein  
15 said first polymerizable material and said second  
16 polymerizable material are capable of bonding with each  
17 other; and,

18 c) bringing said first surface and said second surface  
19 into intimate contact at a bonding surface; and,

20 d) causing said first polymerizable material and said  
21 second polymerizable material to react and join across said  
22 bonding surface.

1 Claim 2 (currently amended): A method of joining ~~plastics~~ as  
2 in claim 1 wherein at least one of said first surface or  
3 said second surface has at least one microfeature therein.

Claim 3 (canceled)

1 Claim 4 (currently amended): A method of joining ~~plastics~~ as  
2 in ~~claim 3~~ claim 1 wherein at least one of said first  
3 workpiece or said second workpiece is selected from the  
4 group consisting of polyimides, polyetherketones,  
5 polyetherimides, polyphenylenes, and polyether-ether-  
6 ketones.

1 Claim 5 (currently amended): A method of joining ~~plastics~~ as  
2 in claim 4 wherein said first workpiece and said second  
3 workpiece are polyphenylenes and said first polymerizable  
4 material and second polymerizable material are mixtures of  
5 styrene and divinylbenzene.

1 Claim 6 (currently amended): A method of joining ~~plastics~~ as  
2 in claim 5 wherein both of said mixtures have a ratio of  
3 approximately 9:1 by volume of styrene to divinylbenzene.

1 Claim 7 (currently amended): A method of joining ~~plastics~~  
2 workpieces comprising:  
3 a) creating a first surface diffusion zone containing  
4 therein a polymerizable material, wherein said first surface  
5 diffusion zone is adjacent to a first joining surface of a  
6 first workpiece within said workpiece and, if present,  
7 removing excess of said polymerizable material from said  
8 first joining surface; and,

9           b) providing a second workpiece having a second  
10 joining surface; and,  
11           c) bringing said first joining surface and said second  
12 joining surface into intimate contact at a bonding surface;  
13 and,  
14           d) causing said polymerizable material to react and  
15 join across said bonding surface.

1    Claim 8 (currently amended): A method of joining ~~plastics~~ as  
2    in claim 7 wherein at least one of said first joining  
3    surface or said second joining surface has at least one  
4    microfeature therein.

Claim 9 (canceled)

1    Claim 10 (currently amended): A method of joining ~~plastics~~  
2    as in ~~claim 9~~ claim 7 wherein at least one of said first  
3    workpiece or said second workpiece is selected from the  
4    group consisting of polyimides, polyetherketones,  
5    polyetherimides, polyphenylenes, and polyether-ether-  
6    ketones.

1    Claim 11 (currently amended): A method of joining ~~plastics~~  
2    as in claim 10 wherein said first workpiece is a  
3    polyphenylene, said second workpiece is a polyetherimide  
4    and said polymerizable material is styrene.

Claims 12-21 (canceled)

1    Claim 22 (new): A method of fabricating a microfluidic  
2    device comprising:

3           creating a first surface diffusion zone containing  
4           therein a first polymerizable material, wherein said first  
5           surface diffusion zone is adjacent to a first surface of a  
6           first workpiece within said first workpiece; and,  
7           if present, removing excess of said first polymerizable  
8           material from said first surface; and,  
9           creating a second surface diffusion zone containing  
10          therein a second polymerizable material, wherein said second  
11          surface diffusion zone is adjacent to a second surface of a  
12          second workpiece within said second workpiece; and,  
13          if present, removing excess of said second  
14          polymerizable material from said second surface; and,  
15          wherein said first polymerizable material and said  
16          second polymerizable material are capable of bonding with  
17          each other; and,  
18          wherein at least one of said first surface and said  
19          second surface has one or more microfluidic features  
20          therein; and,  
21          bringing said first surface and said second surface  
22          into intimate contact at a bonding surface so as to form a  
23          microfluidic device; and,  
24          causing said first polymerizable material and said  
25          second polymerizable material to react and join across said  
26          bonding surface, creating thereby a microfluidic device.

1       Claim 23 (new): A method of fabricating a microfluidic  
2       device comprising:

3           creating a first surface diffusion zone containing  
4           therein a first polymerizable material, wherein said first  
5           surface diffusion zone is adjacent to a first joining  
6           surface of a first workpiece within said first workpiece;  
7           and,

8           if present, removing excess of said first polymerizable  
9 material from said first joining surface; and,  
10           providing a second workpiece having a second joining  
11 surface; and,  
12           wherein at least one of said first joining surface and  
13 said second joining surface has one or more microfluidic  
14 features therein; and,  
15           bringing said first joining surface and said joining  
16 second surface into intimate contact at a bonding surface so  
17 as to form a microfluidic device; and,  
18           causing said polymerizable material to react and join  
19 across said bonding surface, creating thereby a microfluidic  
20 device.